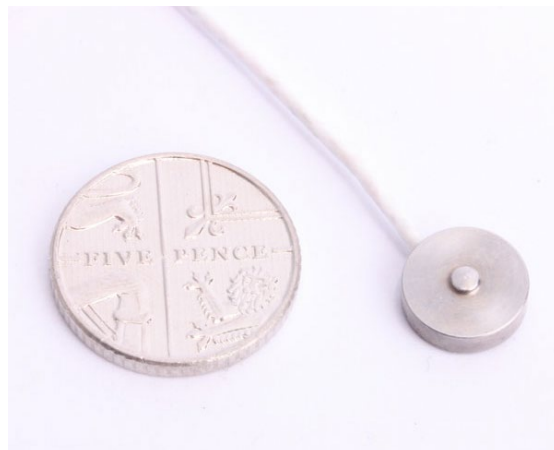




## CDFT Micro Button Load Cell

### Key Features:

- Capacities 10N to 250N
- Sealed to IP53
- Only 9mm in Diameter and 2.9mm in Height
- Integral Load Button
- Wide Temperature Range: -40°C to +125°C
- Accuracy  $< \pm 0.25\% / RC$
- Robust Construction
- 3 Year Warranty



*For the measurement of compressive forces when space is extremely limited.*

The CDFT micro button load cells are designed for the measurement of compressive forces where space is at an absolute premium. Its ultra-small size means it can be fitted in the smallest of spaces and is often retrofitted. It is suited for both force measurement and weighing applications alike. It is used in many industrial process measurement applications for monitoring and control purposes.

The CDFT micro button load cell is the smallest button load cell we offer at a tiny 9mm in diameter and 2.9mm in height. For measuring higher forces please see our CDFM3 miniature button load cell available in capacities from 0-100N up to 0-20kN.

The CDFT series of micro button load cells can be supplied with a range of our transducer instrumentation such as digital indicators, signal conditioners, digitisers or telemetry systems and can be supplied calibrated as a complete system, please speak to our technical sales team.

### Options:

- Special Sizes Available on Request
- Other Ranges Available on Request
- Different Temperature Compensation Ranges Available
- Shunt Calibration Facility
- High Temperature Versions
- Vacuum Application Versions
- USB Versions (via DSC-USB)
- Single or Multi-Channel PC-Based Monitoring & Data Logging System
- TEDS (Transducer Electronic data Sheet)
- TEDS Allows Plug & Play with TEDS Enabled Instrumentation
- Wireless Version (via T24 instrumentation)

### Applications:

- Force Measurement & Weighing Applications
- Industrial Process Measurement Applications
- Research & Development Applications
- Press Force Monitoring
- Batch Weighing
- Variable Force Control
- Load and Compression Sensing
- Assembly Line Force Measurement
- Pumps
- Hoist and Winch Loads
- Robotics and Effectors
- Micro Component Assembly Tools & Machinery
- Keyboard Button and Telephone Control
- Mechanical Switches

Whilst every effort has been made to ensure the accuracy of this specification, we cannot accept responsibility for damage, injury, loss or expense from errors or omissions. In the interest of technical improvement, this specification may be altered without notice.

For pricing or any further information, please contact Omni Instruments Ltd.

#### Contact Details:

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## Specification:

|                                                                                                                                                                                                                                              |                     |                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------|
| Rated Capacity (RC)                                                                                                                                                                                                                          | N                   | 0-10, 0-25, 0-50, 0-100, 0-200, 0-250                                            |
| Operating Modes                                                                                                                                                                                                                              | Compression Only    |                                                                                  |
| Sensitivity (RO)                                                                                                                                                                                                                             | mV/V                | 0.5 to 2 nominal (see dimension table)                                           |
| Zero Balance/Offset                                                                                                                                                                                                                          | ±%/Rated Output     | <1.0                                                                             |
| Non-Linearity                                                                                                                                                                                                                                | ±%/Rated Output     | <0.25                                                                            |
| Hysteresis                                                                                                                                                                                                                                   | %/Rated Output      | <0.25                                                                            |
| Repeatability                                                                                                                                                                                                                                | %/Rated Output      | <0.1                                                                             |
| Temperature Effect on Zero                                                                                                                                                                                                                   | ±%/Rated Output/ °C | <0.01                                                                            |
| Temperature Effect on Sensitivity                                                                                                                                                                                                            | ±%/Applied Load/ °C | <0.02                                                                            |
| Input Resistance                                                                                                                                                                                                                             | Ohms                | 1000 nominal                                                                     |
| Output Resistance                                                                                                                                                                                                                            | Ohms                | 1000 nominal                                                                     |
| Insulation Resistance                                                                                                                                                                                                                        | Megohms             | >5000 @ 50Vdc                                                                    |
| Excitation Voltage                                                                                                                                                                                                                           | Volts AC or DC      | 5 recommended (2-10 acceptable)                                                  |
| Operating Temperature Range                                                                                                                                                                                                                  | °C                  | -40 to +125 (cell only)                                                          |
| Compensated Temperature Range                                                                                                                                                                                                                | °C                  | 0 to +100                                                                        |
| Storage Temperature Range                                                                                                                                                                                                                    | °C                  | -40 to +125                                                                      |
| Safe Overload                                                                                                                                                                                                                                | % of Rated Capacity | 150                                                                              |
| Ultimate Overload                                                                                                                                                                                                                            | % of Rated Capacity | 300                                                                              |
| Deflection @ Rated Capacity                                                                                                                                                                                                                  | mm                  | See dimension table                                                              |
| Fundamental Resonant Frequency*                                                                                                                                                                                                              | kHz                 | See dimension table                                                              |
| IP Rating (Environmental Protection)                                                                                                                                                                                                         |                     | IP53                                                                             |
| Weight                                                                                                                                                                                                                                       | grams               | ~2 (excluding cable)                                                             |
| Fatigue Life                                                                                                                                                                                                                                 |                     | 10 <sup>8</sup> cycles typical (10 <sup>9</sup> cycles on fatigue-rated version) |
| Cable Length (as standard)                                                                                                                                                                                                                   | metres              | 2 (1.5m to compensation module + 0.5m tail)                                      |
| Cable Type                                                                                                                                                                                                                                   |                     | Ø1.35 screened PTFE from cell, Ø3.3 screened PVC from compensation module        |
| Construction Materials                                                                                                                                                                                                                       |                     | Aluminium + Stainless Steel (10N), Stainless Steel (25N upwards)                 |
| Resolution                                                                                                                                                                                                                                   |                     | 1 part in 250,000 (with appropriate instrumentation)                             |
| *The resonant frequency is calculated with the body of the load cell attached to a large plate, ensuring that only the sensing element oscillates: This is vital to achieve the highest natural frequency and subsequent frequency response. |                     |                                                                                  |

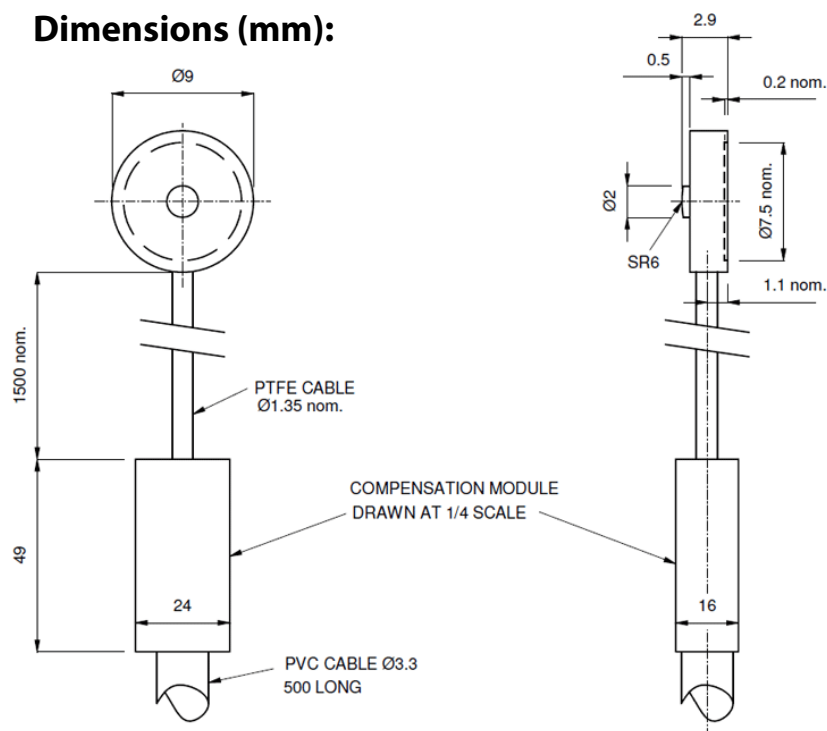
## Wiring Diagram:

| Wire   | Designation                                 |
|--------|---------------------------------------------|
| Red    | +ve excitation                              |
| Blue   | -ve excitation                              |
| Green  | +ve signal                                  |
| Yellow | -ve signal                                  |
| Screen | To ground - not connected to load cell body |

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## Dimensions (mm):



For higher or lower measuring ranges look at our CDFM3 which is available in capacities from 0-100N up to 0-20kN

| Sensitivity @ FS (nominal) | Capacity | Deflection @ FS (nominal) | Resonant Frequency |
|----------------------------|----------|---------------------------|--------------------|
| 0.5mV/V                    | 10N      | 0.005                     | 7kHz               |
| 0.5mV/V                    | 25N      | 0.005                     | 7.5kHz             |
| 1.0mV/V                    | 50N      | 0.010                     | 7.5kHz             |
| 2.0mV/V                    | 100N     | 0.020                     | 7.5kHz             |
| 1.5mV/V                    | 200N     | 0.010                     | 11.5kHz            |
| 2.0mV/V                    | 250N     | 0.012                     | 11.5kHz            |

## Ordering Codes:

| Core Product | Capacity (inc Engineering Units) | Cable Length (m) | Specials Code | Example Result    |
|--------------|----------------------------------|------------------|---------------|-------------------|
| CDFT         | 10N                              | 002              | 000           | CDFT-10N-002-000  |
| CDFT         | 25N                              | 002              | 000           | CDFT-25N-002-000  |
| CDFT         | 50N                              | 002              | 000           | CDFT-50N-002-000  |
| CDFT         | 100N                             | 002              | 000           | CDFT-100N-002-000 |
| CDFT         | 200N                             | 002              | 000           | CDFT-200N-002-000 |
| CDFT         | 250N                             | 002              | 000           | CDFT-250N-002-000 |

## Associated Products:



TR150 Handheld Indicator



T24 Wireless Telemetry Range



Intuitive4-L Panel-Mount Indicator



DSC-USB USB Signal Digitiser



ICA Miniature Strain Gauge Amplifier



SGA Signal Conditioner/Amplifier

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